**Supplementary File 1:** Impact on model performance by expanding the exposure window

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| **Model** | **Exposure window****(days)** | **AUC** | **Proportion of BU cases in top 20% predicted case-containing mesh blocks** |
| MP-MP-scat | 101-171 | 0.66 | 0.34 |
| MP-MP-scat | 61-277 | 0.61 | 0.25 |
| MP-G-scat | 101-171 | 0.75 | 0.67 |
| MP-G-scat | 61-277 | 0.70 | 0.50 |
| MP-MP-2018-cases | 101-171 | 0.55 | 0.28 |
| MP-MP-2018-cases | 61-277 | 0.52 | 0.25 |
| MP-G-2019-cases | 101-171 | 0.50 | 0.17 |
| MP-G-2019-cases | 61-277 | 0.50 | 0.19 |